"unhappy luminosity" about its margin, which is unavoidable, because these lenses contain errors of spherical aberration, which forbid *perfect* definition. Histologists are resting satisfied with an *approximation* to distinctness of definition in their lenses, and this fact becomes apparent on the employment of deep eye-pieces, or of the achromatic amplifier; and it is improbable that there is one lens in America, at the present time, that will clearly define a Bacterium. though they may reveal lines on the diatoms more numerous than the eye can count. But a change is promised in this direction. Mr. Oscar Knipe, of this city, first proposed, in 1856, the use of negative achromatic lenses properly adjusted in the tube of the microscope, as a means of obtaining power with lenses of moderate focal length, and the plan has been in use until the present time, the obstacle to its extension being the imperfect correction of most objectives. By this means we are able to examine objects in shallow cells through moderately thick glass covers, and with a power and definition not to be obtained in any other known way. And since Dr. Royston-Piggott is calling the attention of opticians to these facts, in his various communications to the Royal Microscopical Society, and Mr. E. A. Dickerson, of New York, in a paper published in the October number of the *Science Gossip* for 1870, is also working in the same line, we feel hopeful that such an improvement will be made in lenses that any desirable power may be thus obtained, without the necessity of employing objectives of *extreme* shortness of focal length.

In his examination of sputum Dr. Richardson is the first to call attention to the square fracture exhibited by the elastic fibres of the expectorated pulmonary air-cells, and doubtless it is a diagnostic character of great value.

The volume is illustrated with thirty figures, ten of which are original; and has an index full enough for all purposes of reference and study.

We leave unnoticed a few literary errors, such as the grouping in one ponderous paragraph irrelevant matters, and—as we deem it—some defects in the arrangement of the subject. Indeed, extreme haste in preparation is manifested in its pages, and we therefore regard the book as one of those melancholy cases of premature delivery not altogether unknown to medical experience.

J. G. H.

ART. XXI.—*Microscopical Anatomy of the Human Liver.*
By H. D. SCHMIDT, M.D., of New Orleans. 8vo. pp. 59.

THIS excellent paper on the minute anatomy of the liver, by Dr. H. D. Schmidt, formerly of this city, now of New Orleans, was originally published in the *Journal of Medicine* of the latter place, for October, 1869, and has now been issued as a separate publication. The author's researches are elaborate, and, evidently, have been conducted in a most careful and skilful manner, aided by mechanical appliances, evincing much knowledge and ingenuity on the part of the author. One of the most important results of the examination in the intimate structure of the liver is the discovery of two independent capillary nets in the lobules. One of these nets, the familiar vascular arrangement, which might be called for distinction the hæmal capillary net, as is well known, commences at the periphery of the lobules in the termination of the portal vein and hepatic artery, and ends in the central hepatic vein of the interior of the lobules. The other net, the biliary capillary net, consists of delicate tubes, intercalated with the hæmal capillary net, and ends in the interval of the lobules, in the commencement of the hepatic ducts. The hepatic cells occupy the meshes of the two intralobular nets, and exude their material as bile into the biliary capillary net. This view, we may say, confirms that of the most competent observers during the last decade. Better, we may say the researches of such observers, among whom may be mentioned Budge, Hyrtl, Frey, Chrzonszczewsky, Hering, etc., confirm the statement of Dr. Schmidt, for the writer attests to the discovery of the latter a dozen years ago, of the result above mentioned, and noticed in the number of this Journal for January, 1859.

Dr. Schmidt further announces as one of the important results of his investigations, that the lymphatics have their commencement in the biliary capillary nets. Though the drawings of the preparations appear to demonstrate this conclusion, the view appears to us so improbable that, before admitting it, we must wait for its confirmation by others.

As Dr. Schmidt has proved himself such an able and patient investigator, we hope he will continue his researches in the difficult field of microscopic anatomy. J. L.

ART. XXII.—*A Report on the Microscopic Objects found in Cholera Evacuations.* By TIMOTHY RICHARD LEWIS, M. B., Assistant Surgeon to Her Majesty's British Forces attached to the Sanitary Commission with the Government of India. Printed by order of the Government. 8vo. pp. 68. Plates XXIV. and three maps. Calcutta: 1870.

THIS brochure, which has been put forth under the patronage of the British Indian Government, gives another heavy blow to the asserted production of constitutional disease by fungi. So far as can be judged from internal evidence, its author is well fitted for his task, and, as an *attaché* of the Governmental Sanitary Commission, has had most ample opportunities of studying the disease, both as endemic in Calcutta and as epidemic in Bombay, Lucknow, etc.

After a concise statement of what has been found by various observers in cholera stools, Doctor Lewis first takes up the consideration of the cysts found by Budd, Brittan, Hallier, etc., and by them believed to be peculiar to the dejecta of the disease. He shows that there are not one but several distinct bodies; that some of them are the ova of acari, some the ova of intestinal worms, and some truly portions of cryptogamic plants. So far, however, from the latter (the cholera fungi of Budd) being peculiar they belong, as long since was shown by M. Busk, to a species of uredo, the bunt of wheat, and may be frequently found in coarse bread. Dr. Lewis, therefore, concludes 1, "that no cysts exist in choleraic discharges which are not found under other conditions," and 2, "that cysts or 'sporangia' of fungi are but very rarely found under any circumstances in alvine discharges."

The next subject which claims attention are the so-called "spores." These are shown to be divisible into four sets. 1. Globules, which are nothing but aggregations of fatty matter. 2. Blood cells, which have been effused, and are swollen by endosmose or otherwise altered. 3. Corpuscles, imbedded in a tenacious substance composing the well-known "flakes" of the rice-water stool. 4. Globular, inactive states of certain infusoria.

The only one of these about which there is any difficulty is the third class. These corpuscles are transparent, globular bodies, resembling white blood globules, and, under favourable circumstances, exhibiting movements "exactly similar to those seen in the blood lymph, chyle, and (so-called) mucous corpuscles." They are indistinguishable from the similar bodies found in the fluid of blisters, and "doubtless owe their origin to effused blood plasma, which assumes with great rapidity a low, ill-defined, and non-progressive organization."

With these corpuscles were certain globules, about which Dr. Lewis wishes to speak "with great caution." Frequently, he says, a globule has been observed for some time, and finally disposed of as being an oil one, when suddenly it is seen to protrude a portion of its substance; retract it, and while doing so another protrusion becomes visible at some other portion of the little mass, and then, perhaps, it will shift its position, exactly after the manner of an amœba. These are frequently hyaline in a fresh stool, but generally granular; no trace of a nucleus or contractile vacuole can be observed. Sometimes they are very numerous; but when there are other corpuscles in the field, which act in a somewhat similar manner, it is impossible to say to which class they belong, unless, indeed, they move across the field like an ordinary amœba, and